



## **DEPARTMENT OF THE INTERIOR**

### **Fish and Wildlife Service**

#### **50 CFR Part 17**

**[Docket No. FWS–R1–ES–2015–0070]**

**[4500030114]**

**RIN 1018–BA91**

### **Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Marbled Murrelet**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), request public comment in regard to our designation of critical habitat for the marbled murrelet (*Brachyramphus marmoratus*) under the Endangered Species Act of 1973, as amended (Act). The current designation includes approximately 3,698,100 acres (1,497,000 hectares) of critical habitat in the States of Washington, Oregon, and California. We are reconsidering this designation for the purpose of assessing whether all of the designated areas meet the statutory definition of critical habitat. Because our proposed determination is that all areas currently designated do meet the statutory definition, we are not proposing any changes to the boundaries of the specific areas identified as critical habitat at this time. We seek public comment on our proposed determination.

**DATES:** We will consider comments received or postmarked on or before **[INSERT DATE 60 DAYS AFTER DATE OF FEDERAL REGISTER PUBLICATION]**. Please note that comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**) must be received by 11:59 p.m. Eastern Time on the closing date. Any comments that we receive after the closing date may not be considered in the final determination.

**ADDRESSES:** Comment submission: You may submit written comments by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. In the Search box, enter FWS–R1–ES–2015–0070, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R1–ES–2015–0070; Division of Policy, Performance, and Management Programs, U.S. Fish & Wildlife Service, MS: BPHC, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments **only** by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will

post any personal information you provide us (see the **Information Requested** section below for more information).

**FOR FURTHER INFORMATION CONTACT:** Eric V. Rickerson, State Supervisor, U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, 510 Desmond Drive SE, Suite 102, Lacey, WA 98503-1273 (telephone 360-753-9440, facsimile 360-753-9008); Paul Henson, State Supervisor, U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office, 2600 SE 98th Avenue, Suite 100, Portland, OR 97266, telephone 503-231-6179, facsimile 503-231-6195; Bruce Bingham, Field Supervisor, U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, 1655 Heindon Road, Arcata, CA 95521, telephone 707-822-7201, facsimile 707-822-8411; Jennifer Norris, Field Supervisor, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, CA 95825, telephone 916-414-6700, facsimile 916-414-6713; or Stephen P. Henry, Field Supervisor, U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, CA 93003, telephone 805-644-1766, facsimile 805-644-3958. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

## **SUPPLEMENTARY INFORMATION:**

### **Executive Summary**

*Purpose of this document.* On May 24, 1996, we published in the **Federal Register** a final rule designating 3,887,800 acres (ac) (1,573,340 hectares (ha)) of critical habitat for the marbled murrelet (61 FR 26256) in the States of Washington, Oregon, and California. On October 5, 2011, we published in the **Federal Register** a final rule revising critical habitat for the marbled murrelet (76 FR 61599), resulting in the removal of approximately 189,671 ac (76,757 ha) of critical habitat in the States of Oregon and California. We are reconsidering the 1996 final rule, as revised in 2011, for the purpose of assessing whether all of the designated areas meet the statutory definition of critical habitat. We are not proposing any changes to the boundaries of the specific areas identified as critical habitat.

*Why we need to reconsider the rule.* In 2012, the American Forest Resource Council (AFRC) and other parties filed suit against the Service, challenging the designation of critical habitat for the marbled murrelet, among other things. After this suit was filed, the Service concluded that the 1996 rule that first designated critical habitat for the marbled murrelet, as well as the 2011 rule that revised that designation, did not comport with recent case law holding that the Service should specify which areas were occupied at the time of listing, and should further explain why unoccupied areas are essential for conservation of the species. Hence, the Service moved for a voluntary remand of the critical habitat rule, requesting until September 30, 2015, to issue a proposed rule, and until September 30, 2016, to issue a final rule. On September 5, 2013, the court granted the Service's motion, leaving the current critical habitat rule in effect pending completion of the remand.

*The basis for our action.* Under the Act, any species that is determined to be an endangered or threatened species shall, to the maximum extent prudent and determinable, have habitat designated that is considered to be critical habitat. Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best scientific data available after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. Section 4 of the Act and its implementing regulations (50 CFR 424) set forth the procedures for designating or revising critical habitat for listed species.

*We considered the economic impacts of this proposed rule.* Our evaluation of the potential economic impacts of this rulemaking regarding critical habitat for the marbled murrelet is provided in this document; we seek public review of our analysis.

### **Information Requested**

We will base any final action on the best scientific data available. Therefore, we request comments or information from the public, other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested party concerning this proposed rule. We particularly seek comments concerning:

- (1) What areas within the currently designated critical habitat for the marbled

murrelet were occupied at the time of listing and contain features essential to the conservation of the species;

(2) Special management considerations or protection that may be needed in critical habitat areas, including managing for the potential effects of climate change;

(3) What areas within the currently designated critical habitat are essential for the conservation of the species and why; and

(4) Information on the extent to which the description of economic impacts in this document is a reasonable estimate of the likely economic impacts of our proposed determination.

We will consider all comments and information received during the comment period on this proposed rulemaking during our preparation of a final determination.

Please note that submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination, as section 4(b) of the Act directs that determinations regarding the designation of critical habitat, or revisions thereto, must be made "on the basis of the best scientific data available."

You may submit your comments and materials by one of the methods listed in

**ADDRESSES.** We request that you send comments only by the methods described in **ADDRESSES.**

If you submit information via <http://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on <http://www.regulations.gov>. Please include sufficient information with your comments to allow us to verify any scientific information you include.

In making a final decision on this matter, we will take into consideration the comments and any additional information we receive. Comments and materials received, as well as some of the supporting documentation used in the preparation of a final determination, will be available for public inspection on <http://www.regulations.gov>. All information we use in making our final rule will be available by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Previous Federal Actions**

For additional information on previous Federal actions concerning the marbled murrelet, refer to the final listing rule published in the **Federal Register** on October 1, 1992 (57 FR 45328), the final rule designating critical habitat published in the **Federal Register** on May 24, 1996 (61 FR 26256), and the final revised critical habitat rule published in the **Federal Register** on October 5, 2011 (76 FR 61599). In the 1996 final critical habitat rule, we designated 3,887,800 ac (1,573,340 ha) of critical habitat in 32 units on Federal and non-Federal lands. On September 24, 1997, we completed a recovery plan for the marbled murrelet in Washington, Oregon, and California (USFWS 1997, entire). On January 13, 2003, we entered into a settlement agreement with AFRC and the Western Council of Industrial Workers, whereby we agreed to review the marbled murrelet critical habitat designation and make any revisions deemed appropriate after a revised consideration of economic and any other relevant impacts of designation. On April 21, 2003, we published in the **Federal Register** a notice initiating a 5-year review of the marbled murrelet (68 FR 19569), and published a second information request for the 5-year review on July 25, 2003 (68 FR 44093). The 5-year review evaluation report was finished in March 2004 (McShane *et al.* 2004), and the 5-year review was completed on August 31, 2004.

On September 12, 2006, we published in the **Federal Register** a proposed revision to critical habitat for the marbled murrelet, which included adjustments to the original designation and proposed several exclusions under section 4(b)(2) of the Act (71 FR 53838). On June 26, 2007, we published in the **Federal Register** a document announcing the availability of a draft economic analysis (72 FR 35025) related to the



September 12, 2006, proposed critical habitat revision (71 FR 53838). On March 6, 2008, we published a notice in the **Federal Register** (73 FR 12067) stating that the critical habitat for marbled murrelet should not be revised due to uncertainties regarding U.S. Bureau of Land Management (BLM) revisions to its District Resource Management Plans in western Oregon, and this notice fulfilled our obligations under the settlement agreement.

On July 31, 2008, we published in the **Federal Register** a proposed rule to revise currently designated critical habitat for the marbled murrelet by removing approximately 254,070 ac (102,820 ha) in northern California and Oregon from the 1996 designation (73 FR 44678). A second 5-year review was completed on June 12, 2009. On January 21, 2010, in response to a May 28, 2008, petition to delist the California/Oregon/Washington distinct population segment (DPS) of the marbled murrelet and our subsequent October 2, 2008, 90-day finding concluding that the petition presented substantial information (73 FR 57314), we published a 12-month finding notice in the **Federal Register** (75 FR 3424) determining that removing the marbled murrelet from the Federal List of Endangered and Threatened Wildlife (50 CFR 17.11) was not warranted. We also found that the Washington/Oregon/California population of the marbled murrelet is a valid DPS in accordance with the discreteness and significance criteria in our 1996 DPS policy (February 7, 1996; 61 FR 4722) and concluded that the DPS continues to meet the definition of a threatened species under the Act.

On October 5, 2011, we published in the **Federal Register** a final rule revising the critical habitat designation for the marbled murrelet (76 FR 61599). This final rule removed approximately 189,671 ac (76,757 ha) in northern California and southern Oregon from the 1996 designation, based on new information indicating these areas did not meet the definition of critical habitat for the marbled murrelet, resulting in a final revised designation of approximately 3,698,100 ac (1,497,000 ha) of critical habitat in Washington, Oregon, and California.

On January 24, 2012, AFRC filed suit against the Service to delist the marbled murrelet and vacate critical habitat. On March 30, 2013, the U.S. District Court for the District of Columbia granted in part AFRC's motion for summary judgment and denied a joint motion for vacatur of critical habitat pending completion of a voluntary remand. Following this ruling, the Service moved for a remand of the critical habitat rule, without vacatur, in light of recent case law setting more stringent requirements on the Service for specifying how designated areas meet the definition of critical habitat. On September 5, 2013, the district court ordered the voluntary remand without vacatur of the critical habitat rule, and set deadlines of September 30, 2015, for a proposed rule and September 30, 2016, for a final rule. The court ruled in favor of the Service regarding the Service's denial of plaintiffs' petition to delist the species, and that ruling was affirmed on appeal. See *American Forest Resource Council v. Ashe*, 946 F. Supp. 2d 1 (D.D.C. 2013), *aff'd* 2015 U.S. App. LEXIS 6205 (D.C. Cir., Feb. 27, 2015).

## **Background**

A final rule designating critical habitat for the marbled murrelet was published in the **Federal Register** on May 24, 1996 (61 FR 26256). A final rule revising the 1996 designation of critical habitat for the marbled murrelet was published in the **Federal Register** on October 5, 2011 (76 FR 61599). Both of these rules are available under the "Supporting Documents" section for this docket in the Federal eRulemaking Portal: <http://www.regulations.gov> at Docket Number FWS–R1–ES–2015–0070. It is our intent to discuss only those topics directly relevant to the 1996 and revised 2011 designations of critical habitat for the marbled murrelet. A complete description of the marbled murrelet, including a discussion of its life history, distribution, ecology, and habitat, can be found in the May 24, 1996, final rule (61 FR 26256) and the final recovery plan (USFWS 1997).

In this document, we are reconsidering the final rule designating critical habitat for the marbled murrelet (May 24, 1996; 61 FR 26256, as revised on October 5, 2011; 76 FR 61599). The current designation consists of approximately 3,698,100 ac (1,497,000 ha) of critical habitat in Washington, Oregon, and California. The critical habitat consists of 101 subunits: 37 in Washington, 33 in Oregon, and 31 in California. We are reconsidering the final rule for the purpose of evaluating whether all areas currently designated meet the definition of critical habitat under the Act. We describe and assess each of the elements of the definition of critical habitat, and evaluate whether these statutory criteria apply to the current designation of critical habitat for the marbled

murrelet. In order to conduct this evaluation, here we present the following relevant information:

- I. The statutory definition of critical habitat.
- II. A description of the physical or biological features essential to the conservation of the marbled murrelet, for the purpose of evaluating whether the areas designated as critical habitat provide these essential features.
- III. The primary constituent elements for the marbled murrelet.
- IV. A description of why those primary constituent elements may require special management considerations or protection.
- V. Our standard for defining the geographical areas occupied by the species at the time of listing.
- VI. The evaluation of those specific areas within the geographical area occupied at the time of listing for the purpose of determining whether designated critical habitat meets the definition under section 3(5)(A)(i) of the Act.
- VII. An additional evaluation of all critical habitat to determine whether the designated units meet the test of being essential to the conservation of the species, under section 3(5)(A)(ii) of the Act. We conduct this analysis to assess whether all areas of critical habitat meet the statutory definition under either of the definition's prongs, regardless of occupancy. This approach is consistent with the ruling in *Home Builders Ass'n of Northern California v. U.S. Fish and Wildlife Service*, 616 F.3d 983 (9<sup>th</sup> Cir.), *cert. denied* 131 S.Ct. 1475 (2011), in which the court upheld a critical habitat rule in which the Service had determined that the

areas designated, whether occupied or not, met the more demanding standard of being essential for conservation.

- VIII. Restated correction to preamble language in 1996 critical habitat rule.
- IX. Effects of critical habitat designation under section 7 of the Act.
- X. As required by section 4(b)(2) of the Act, consideration of the potential economic impacts of this proposed rule.
- XI. Proposed determination that all areas currently designated as critical habitat for the marbled murrelet meet the statutory definition under the Act.

## **I. Critical Habitat**

Critical habitat is defined in section 3 of the Act as:

(1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species, and

(b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Under the first prong of the Act's definition of critical habitat in section 3(5)(a)(i), areas within the geographical area occupied by the species at the time it was listed may be included in critical habitat if they contain physical or biological features: (1) which are essential to the conservation of the species; and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical and biological features within an area, we focus on the primary biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements (PCEs) are those specific elements of the physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat in section 3(5)(A)(ii), we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon the Secretary's determination that such areas are essential for the conservation of the species. For example, an area

currently occupied by the species but that was not occupied at the time of listing may be essential for the conservation of the species and may be included in the critical habitat designation. In addition, if critical habitat is designated or revised subsequent to listing, we may designate areas as critical habitat that may currently be unoccupied but that were occupied at the time of listing. We designate critical habitat in areas outside the geographical area presently occupied by a species only when a designation limited to its present range would be inadequate to ensure the conservation of the species.

## **II. Physical or Biological Features**

Here we describe the physical or biological features essential to the conservation of the marbled murrelet, for the purpose of evaluating whether these features are present within the areas designated as critical habitat for this reconsideration of the final rule.

We identified the specific physical or biological features essential for the conservation of the marbled murrelet from studies of this species' habitat, ecology, and life history as described below. Additional information can be found in the final listing rule published in the **Federal Register** on October 1, 1992 (57 FR 45328), and the Recovery Plan for the Marbled Murrelet (USFWS 1997). In the 1996 final critical habitat rule (May 24, 1996; 61 FR 26256), we relied on the best available scientific information to describe the terrestrial habitat used for nesting by the marbled murrelet. For this 2015 rule reconsideration, the majority of the following information is taken directly from the 1996 final critical habitat rule, where the fundamental physical or

biological features essential to the marbled murrelet as described therein remain valid (described in the section titled *Ecological Considerations*) (May 24, 1996; 61 FR 26256).

Where newer scientific information is available that refutes or validates the information presented in the 1996 final critical habitat rule, that information is provided here and is so noted. However, this proposed rule does not constitute a complete summary of all new scientific information on the biology of the marbled murrelet since 1996. Because this rule reconsideration addresses the 1996 final critical habitat, as revised in 2011 (October 5, 2011; 76 FR 61599), which designated critical habitat only in the terrestrial environment, the following section will solely focus on the terrestrial nesting habitat features. Forested areas with conditions that are capable of supporting nesting marbled murrelets are referred to as “suitable nesting habitat.” Loss of such nesting habitat was the primary basis for listing the marbled murrelet as threatened; hence protection of such habitat is essential to the conservation of the species. We consider the information provided here to represent the best available scientific data with regard to the physical or biological features essential for the marbled murrelet’s use of terrestrial habitat.

Throughout the forested portion of the species’ range, marbled murrelets typically nest in forested areas containing characteristics of older forests (Binford *et al.* 1975, p. 305; Quinlan and Hughes 1990, entire; Hamer and Cummins 1991, pp. 9–13; Kuletz 1991, p. 2; Singer *et al.* 1991, pp. 332–335; Singer *et al.* 1992, entire; Hamer *et al.* 1994, entire; Hamer and Nelson 1995, pp. 72–75; Ralph *et al.* 1995a, p. 4). The marbled



murrelet population in Washington, Oregon, and California nests in most of the major types of coniferous forests (Hamer and Nelson 1995, p. 75) in the western portions of these states, wherever older forests remain inland of the coast. Although marbled murrelet nesting habitat characteristics may vary throughout the range of the species, some general habitat attributes are characteristic throughout its range, including the presence of nesting platforms, adequate canopy cover over the nest, landscape condition, and distance to the marine environment (Binford *et al.* 1975, pp. 315–316; Hamer and Nelson 1995, pp. 72–75; Ralph *et al.* 1995b, p. 4; McShane *et al.* 2004, p. 4-39).

Individual tree attributes that provide conditions suitable for nesting (i.e., provide a nesting platform) include large branches (ranging from 4 to 32 in (10 to 81 cm), with an average of 13 inches (in) (32 centimeters (cm)) in Washington, Oregon, and California) or forked branches, deformities (e.g., broken tops), dwarf mistletoe infections, witches' brooms, and growth of moss or other structures large enough to provide a platform for a nesting adult marbled murrelet (Hamer and Cummins 1991, p. 15; Singer *et al.* 1991, pp. 332–335; Singer *et al.* 1992, entire; Hamer and Nelson 1995, p. 79). These nesting platforms are generally located greater or equal to 33 feet (ft) (10 meters (m)) above ground (reviewed in Burger 2002, pp. 41–42 and McShane *et al.* 2004, pp. 4-55–4-56). These structures are typically found in old-growth and mature forests, but may be found in a variety of forest types including younger forests containing remnant large trees. Since 1996, research has confirmed that the presence of platforms is considered the most important characteristic of marbled murrelet nesting habitat (Nelson 1997, p. 6; reviewed in Burger 2002, pp. 40, 43; McShane *et al.* 2004, pp. 4-45–4-51, 4-53, 4-55, 4-56, 4-59;

Huff *et al.* 2006, pp. 12–13, 18). Platform presence is more important than the size of the nest tree because tree size alone may not be a good indicator of the presence and abundance of platforms (Evans Mack *et al.* 2003, p. 3). Tree diameter and height can be positively correlated with the size and abundance of platforms, but the relationship may change depending on the variety of tree species and forest types marbled murrelets use for nesting (Huff *et al.* 2006, p. 12). Overall, nest trees in Washington, Oregon, and northern California have been greater than 19 in (48 cm) diameter at breast height (dbh) and greater than 98 ft (30 m) tall (Hamer and Nelson 1995, p. 81; Hamer and Meekins 1999, p. 10; Nelson and Wilson 2002, p. 27).

Northwestern forests and trees typically require 200 to 250 years to attain the attributes necessary to support marbled murrelet nesting, although characteristics of nesting habitat sometimes develop in younger coastal redwood (*Sequoia sempervirens*) and western hemlock (*Tsuga heterophylla*) forests. Forests with older residual trees remaining from previous forest stands may also develop into nesting habitat more quickly than those without residual trees. These remnant attributes can be products of fire, windstorms, or previous logging operations that did not remove all of the trees (Hansen *et al.* 1991, p. 383; McComb *et al.* 1993, pp. 32–36). Other factors that may affect the time required to develop suitable nesting habitat characteristics include site productivity and microclimate.

Through the 1995 nesting season, 59 active or previously used tree nests had been located in Washington (9 nests), Oregon (36 nests), and California (14 nests) (Hamer and

Nelson 1995, pp. 70–71; Nelson and Wilson 2002, p. 134; Washington Department of Fish and Wildlife murrelet database; California Department of Fish and Game murrelet database). All of the nests for which data were available in 1996 in Washington, Oregon, and California were in large trees that were more than 32 in (81 cm) dbh (Hamer and Nelson 1995, p. 74). Of the 33 nests for which data were available, 73 percent were on a moss substrate and 27 percent were on litter, such as bark pieces, conifer needles, small twigs, or duff (Hamer and Nelson 1995, p. 74). The majority of nest platforms were created by large or deformed branches (Hamer and Nelson 1995, p. 79). Nests found subsequently have characteristics generally consistent with these tree diameter and platform sources (McShane *et al.* 2004, pp. 4-50 to 4-59; Bloxton and Raphael 2009, p. 8). However, in Oregon, nests were found in smaller diameter trees (as small as 19 in (49 cm)) that were distinguished by platforms provided by mistletoe infections (Nelson and Wilson 2002, p. 27). In Washington, one nest was found on a cliff (i.e., ground nest) that exhibited features similar to a tree platform, such as vertical and horizontal cover (Bloxton and Raphael 2009, pp. 8 and 33). In central California, nest platforms were located on large limbs and broken tops with 32.3 percent mean moss cover on nest limbs (Baker *et al.* 2006, p. 944).

More than 94 percent of the nests for which data were available in 1996 were in the top half of the nest trees, which may allow easy nest access and provide shelter from potential predators and weather. Canopy cover directly over the nests was typically high (average 84 percent; range 5 to 100 percent) in Washington, Oregon, and California (Hamer and Nelson 1995, p. 74). This cover may provide protection from predators and

weather. Such canopy cover may be provided by trees adjacent to the nest tree, or by the nest tree itself. Canopy closure of the nest stand/site varied between 12 and 99 percent and averaged 48 percent (Hamer and Nelson 1995, p. 73). Information gathered subsequent to 1996 confirms that additional attributes of the platform are important including both vertical and horizontal cover and substrate. Known nest sites have platforms that are generally protected by branches above (vertical cover) or to the side (horizontal cover) (Huff *et al.* 2006, p. 14). Marbled murrelets appear to select limbs and platforms that provide protection from predation (Marzluff *et al.* 2000, p. 1135; Luginbuhl *et al.* 2001, p. 558; Raphael *et al.* 2002a, pp. 226, 228) and inclement weather (Huff *et al.* 2006, p. 14). Substrate, such as moss, duff, or needles on the nest limb is important for protecting the egg and preventing it from falling (Huff *et al.* 2006, p. 13).

Nests have been located in forested areas dominated by coastal redwood, Douglas-fir (*Pseudotsuga menziesii*), mountain hemlock (*Tsuga mertensiana*), Sitka spruce (*Picea sitchensis*), western hemlock, and western red cedar (*Thuja plicata*) (Binford *et al.* 1975, p. 305; Quinlan and Hughes 1990, entire; Hamer and Cummins 1991, p. 15; Singer *et al.* 1991, p. 332, Singer *et al.* 1992, p. 2; Hamer and Nelson 1995, p. 75). Individual nests in Washington, Oregon, and California have been located in Douglas-fir, coastal redwood, western hemlock, western red cedar, and Sitka spruce trees (Hamer and Nelson 1995, p. 74).

For nesting habitat to be accessible to marbled murrelets, it must occur close enough to the marine environment for marbled murrelets to fly back and forth. The

farthest inland distance for a site with nesting behavior detections is 52 mi (84 km) in Washington. The farthest known inland sites with nesting behavior detections in Oregon and California are 40 and 24 mi (65 and 39 km), respectively (Evans Mack *et al.* 2003, p. 4). Additionally, as noted below in the section titled **Definition of Geographical Area Occupied at the Time of Listing**, presence detections have been documented farther inland in Washington, Oregon, and California (Evans Mack *et al.* 2003, p. 4).

Prior to Euroamerican settlement in the Pacific Northwest, nesting habitat for the marbled murrelet was well distributed, particularly in the wetter portions of its range in Washington, Oregon, and California. This habitat was generally found in large, contiguous blocks of forest (Ripple 1994, p. 47) as described under the *Management Considerations* section of the 1996 final critical habitat rule (May 24, 1996; 61 FR 26256).

Areas where marbled murrelets are concentrated at sea during the breeding season are likely determined by a combination of terrestrial and marine conditions. However, nesting habitat appears to be the most important factor affecting marbled murrelet distribution and numbers. Marine survey data confirmed conclusions made in the supplemental proposed critical habitat rule (August 10, 1995; 60 FR 40892) that marine observations of marbled murrelets during the nesting season generally correspond to the largest remaining blocks of suitable forest nesting habitat (Nelson *et al.* 1992, p. 64; Varoujean *et al.* 1994, entire; Ralph *et al.* 1995b, pp. 5–6; Ralph and Miller 1995, p. 358).

Consistent with Varoujean *et al.*'s (1994) 1993 and 1994 aerial surveys, Thompson (1996, p. 11) found marbled murrelets to be more numerous along Washington's northern outer coast and less abundant along the southern coast. Thompson reported that this distribution appears to be correlated with: (1) proximity of old-growth forest, (2) the distribution of rocky shoreline/substrate versus sandy shoreline/substrate, and (3) abundance of kelp (Thompson 1996, p. 11). In British Columbia Canada, Rodway *et al.* (1995, pp. 83, 85, 86) observed marbled murrelets aggregating on the water close to breeding areas at the beginning of the breeding season and, for one of their two study areas, again in July as young were fledging. Burger (1995, pp. 305–306) reported that the highest at-sea marbled murrelet densities in both 1991 and 1993 were seen immediately adjacent to two tracts of old-growth forest, while areas with very low densities of marbled murrelets were adjacent to heavily logged watersheds. More recent evidence supports that detections of marbled murrelets at inland sites and densities offshore were higher in or adjacent to areas with large patches of old-growth, and in areas of low fragmentation and low isolation of old-growth patches (Raphael *et al.* 1995, pp. 188–189; Burger 2002, p. 54; Meyer and Miller 2002, pp. 763–764; Meyer *et al.* 2002, pp. 109–112; Miller *et al.* 2002, p. 100; Raphael *et al.* 2002a, p. 221; Raphael *et al.* 2002b, p. 337). Overall, landscapes with detections indicative of nesting behavior tended to have large core areas of old-growth and low amounts of overall edge (Meyer and Miller 2002, pp. 763–764; Raphael *et al.* 2002b, p. 331).

In contrast, where nesting habitat is limited in southwest Washington, northwest Oregon, and portions of California, few marbled murrelets are found at sea during the nesting season (Ralph and Miller 1995, p. 358; Varoujean and Williams 1995, p. 336; Thompson 1996, p. 11). For instance, as of 1996, the area between the Olympic Peninsula in Washington and Tillamook County in Oregon (100 mi (160 km)) had few sites with detections indicative of nesting behavior or sightings at sea of marbled murrelets. In California, approximately 300 mi (480 km) separate the large breeding populations to the north in Humboldt and Del Norte Counties from the southern breeding population in San Mateo and Santa Cruz Counties. This reach contained few marbled murrelets during the breeding season; however, the area likely contained significant numbers of marbled murrelets before extensive logging (Paton and Ralph 1988, p. 11, Larsen 1991, pp. 15–17). More recent at-sea surveys confirm the low numbers of marbled murrelets in marine areas adjacent to inland areas that have limited nesting habitat (Miller *et al.* 2012, p. 775; Raphael *et al.* 2015, p. 21).

Dispersal mechanisms of marbled murrelets are not well understood; however, social interactions may play an important role. The presence of marbled murrelets in a forest stand may attract other pairs to currently unused habitat within the vicinity. This may be one of the reasons marbled murrelets have been observed in habitat not currently suitable for nesting, but in close proximity to known nesting sites (Hamer and Cummins 1990, p. 14; Hamer *et al.* 1994, entire). Although marbled murrelets appear to be solitary in their nesting habits (Nelson and Peck 1995, entire), they are frequently detected in groups above the forest, especially later in the breeding season (USFWS 1995, pp. 14–

16). Two active nests discovered in Washington during 1990 were located within 150 ft (46 m) of each other (Hamer and Cummins 1990, p. 47), and two nests discovered in Oregon during 1994 were located within 100 ft (33 m) of each other (USFWS 1995, p. 14). Therefore, unused habitat in the vicinity of known nesting habitat may be more important for recovering the species than suitable habitat isolated from known nesting habitat (USFWS 1995; USFWS 1997, p. 20). Similarly, marbled murrelets are more likely to discover newly developing habitat in proximity to sites with documented nesting behaviors. Because the presence of marbled murrelets in a forest stand may attract other pairs to currently unused habitat within the vicinity, the potential use of these areas may depend on how close the new habitat is to known nesting habitat, as well as distance to the marine environment, population size, and other factors (McShane *et al.* 2004, p. 4-78).

Marbled murrelets are believed to be highly vulnerable to predation when on the nesting grounds, and the species has evolved a variety of morphological and behavioral characteristics indicative of selection pressures from predation (Ralph *et al.* 1995b, p. 13). For example, plumage and eggshells exhibit cryptic coloration, and adults fly to and from nests by indirect routes and often under low-light conditions (Nelson and Hamer 1995a, p. 66). Potential nest predators include the great horned owl (*Bubo virginianus*), Cooper's hawk (*Accipiter cooperii*), barred owl (*Strix varia*), northwestern crow (*Corvus caurinus*), American crow (*Corvus brachyrhynchos*), and gray jay (*Perisoreus canadensis*) (Nelson and Hamer 1995b, p. 93; Marzluff *et al.* 1996, p. 22; McShane *et al.* 2004, p. 2-17). The common raven (*Corvus corax*), Steller's jay (*Cyanocitta stelleri*),



and sharp-shinned hawk (*Accipiter striatus*) are known predators of eggs or chicks (Nelson and Hamer 1995b, p. 93, McShane *et al.* 2004, pp. 2-16–2-17). Based on experimental work with artificial nests, predation on eggs and chicks by squirrels and mice may also occur (Luginbuhl *et al.* 2001, p. 563; Bradley and Marzluff 2003, pp. 1183–1184). In addition, a squirrel has been documented rolling a recently abandoned egg off a nest (Malt and Lank 2007, p. 170).

From 1974 through 1993, of those marbled murrelet nests in Washington, Oregon, and California where nest success or failure was documented, approximately 64 percent of the nests failed. Of those nests, 57 percent failed due to predation (Nelson and Hamer 1995b, p. 93). Continuing research further supports predation as a significant cause of nest failure (McShane *et al.* 2004, pp. 2-16 to 2-19; Peery *et al.* 2004, pp. 1093–1094; Hebert and Golightly 2006, pp. 98–99; Hebert and Golightly 2007, pp. 222–223; Malt and Lank 2007, p. 165). The relatively high predation rate could be biased because nests near forest edges may be more easily located by observers and also more susceptible to predation, and because observers may attract predators. However, Nelson and Hamer (1995b, p. 94) believed that researchers had minimal impacts on predation in most cases because the nests were monitored from a distance and relatively infrequently, and precautions were implemented to minimize predator attraction. More recent research has relied on remotely operated cameras for observing nests, rather than people, in order to reduce the possible effects of human attraction (Hebert and Golightly 2006, p. 12; Hebert and Golightly 2007, p. 222).

Several possible reasons exist for the high observed predation rates of marbled murrelet nests. One possibility is that these high predation rates are normal, although it is unlikely that a stable population could have been maintained historically under the predation rates observed (Beissinger 1995, p. 390).

In the 1996 rule we hypothesized that populations of marbled murrelet predators such as corvids (jays, crows, and ravens) and great horned owls are increasing in the western United States, largely in response to habitat changes and food sources provided by humans (Robbins *et al.* 1986, pp. 43–46; Johnson 1993, pp. 58–60; Marzluff *et al.* 1994, pp. 214–216; National Biological Service 1996, entire), resulting in increased predation rates on marbled murrelets. Subsequent to the 1996 rule, surveys have confirmed that corvid populations are indeed increasing in western North America as a result of land use and urbanization (Marzluff *et al.* 2001, pp. 332–333; McShane *et al.* 2004, pp. 6–11; Sauer *et al.* 2013, pp. 18–19). However, breeding bird surveys in North America indicate that great horned owls are declining in 40 percent of the areas included in the surveys (Sauer *et al.* 2013, p. 17). Barred owls (*Strix varia*), foraging generalists that may prey on marbled murrelets, were not considered in 1996, but have subsequently been shown to be significantly increasing in numbers and distribution (Sauer *et al.* 2013, p. 17).

In the 1996 rule, we also posited that creation of greater amounts of forest edge habitat may increase the vulnerability of marbled murrelet nests to predation and ultimately lead to higher rates of predation. Edge effects have been implicated in

increased forest bird nest predation rates for other species of birds (Chasko and Gates 1982, pp. 21–23; Yahner and Scott 1988, p. 160). In a comprehensive review of the many studies on the potential relationship between forest fragmentation, edge, and adverse effects on forest nesting birds, Paton (1994, p. 25) concluded that “strong evidence exists that avian nest success declines near edges.” Small patches of habitat have a greater proportion of edge than do large patches of the same shape. However, many of the studies Paton (1994, entire) reviewed involved lands where forests and agricultural or urban areas interface, or they involved experiments with ground nests that are not readily applicable to canopy nesters such as marbled murrelets. Paton (1994, p. 25), therefore, stressed the need for studies specific to forests fragmented by timber harvest in the Pacific Northwest and elsewhere.

Some research on this topic has been conducted in areas dominated by timber production and using nests located off the ground (Ratti and Reese 1988, entire; Rudnický and Hunter 1993, entire; Marzluff *et al.* 1996, entire; Vander Haegen and DeGraaf in press, entire). Vander Haegen and DeGraaf (in press, p. 8; 1996, pp. 175–176) found that nests in shrubs less than 75 m (246 ft) from an edge were three times as likely to be depredated than nests greater than 75 m (264 ft) from an edge. Likewise, Rudnický and Hunter (1993, p. 360) found that shrub nests on the forest edge were depredated almost twice as much as shrub nests located in the forest interior. They also observed that shrub nests were taken primarily by avian predators such as crows and jays, which is consistent with the predators believed to be impacting marbled murrelets, while ground nests were taken by large mammals such as raccoons and skunks. Ratti and

Reese (1988, entire) did not find the edge relationship documented by Rudnický and Hunter (1993, entire), Vander Haegen and DeGraaf (in press), and others cited in Paton (1994, entire). However, Ratti and Reese (1988, p. 488) did observe lower rates of predation near “feathered” edges compared to “abrupt” edges (e.g., clearcut or field edges), and suggested that the vegetative complexity of the feathered edge may better simulate natural edge conditions than do abrupt edges. These authors also concluded that their observations were consistent with Gates and Gysel’s (1978, p. 881) hypothesis that birds are poorly adapted to predator pressure near abrupt artificial edge zones.

Studies of artificial and natural nests conducted in Pacific Northwest forests also indicate that predation of forest bird nests may be affected by habitat fragmentation, forest management, and land development (Hansen *et al.* 1991, p. 388; Vega 1993, pp. 57–61; Bryant 1994, pp. 14–16; Nelson and Hamer 1995b, pp. 95–97; Marzluff *et al.* 1996, pp. 31–35). Nelson and Hamer (1995b, p. 96), found that successful marbled murrelet nests were further from edge than unsuccessful nests. Marzluff *et al.* (1996, entire) conducted experimental predation studies that used simulated marbled murrelet nests, and more recent research documented predation of artificial marbled murrelet nests by birds and arboreal mammals (Luginbuhl *et al.* 2001, pp. 562–563; Bradley and Marzluff 2003, pp. 1183–1884; Marzluff and Neatherlin 2006, p. 310; Malt and Lank 2007, p. 165). Additionally, more recent research indicates proximity to human activity and landscape contiguity may interact to determine rate of predation (Marzluff *et al.* 2000, pp. 1136–1138, Raphael *et al.* 2002a, entire; Zharikov *et al.* 2006, p. 117; Malt and Lank 2007, p. 165). Interior forest nests in contiguous stands far from human activity

appear to experience the least predation (Marzluff *et al.* 1996, p. 29; Raphael *et al.* 2002a, pp. 229–231).

More recent information indicates that marbled murrelets locate their nests throughout forest stands and fragments, including along various types of natural and human-made edges (Hamer and Meekins 1999, p. 1; Manley 1999, p. 66; Bradley 2002, pp. 42, 44; Burger 2002, p. 48; Nelson and Wilson 2002, p. 98). In California and southern Oregon, areas with abundant numbers of marbled murrelets were farther from roads, occurred more often in parks protected from logging, and were less likely to occupy old-growth habitat if they were isolated (greater than 3 mi (5 km)) from other nesting marbled murrelets (Meyer *et al.* 2002, pp. 95, 102–103). Marbled murrelets no longer occur in areas without suitable forested habitat, and they appear to abandon highly fragmented areas over time (areas highly fragmented before the late 1980s generally did not support marbled murrelets by the early 1990s) (Meyer *et al.* 2002, p. 103).

The conversion of large tracts of native forest to small, isolated forest patches with large edge can create changes in microclimate, vegetation species, and predator–prey dynamics—such changes are often collectively referred to as “edge effects.” Unfragmented, older-aged forests have lower temperatures and solar radiation and higher humidity compared to clearcuts and other open areas (e.g., Chen *et al.* 1993, p. 219; Chen *et al.* 1995, p. 74). Edge habitat is also exposed to increased temperatures and light, high evaporative heat loss, increased wind, and decreased moisture. Fundamental changes in the microclimate of a stand have been recorded at least as far as 787 ft (240 m) from the

forest edge (Chen *et al.* 1995, p. 74). The changes in microclimate regimes with forest fragmentation can stress an old-growth associate species, especially a cold-water adapted seabird such as the marbled murrelet (Meyer and Miller 2002, p. 764), and can affect the distribution of epiphytes that marbled murrelets use for nesting. Branch epiphytes or substrate have been identified as a key component of marbled murrelet nests (Nelson *et al.* 2003, p. 52; McShane *et al.* 2004, pp. 4-48, 4-89, 4-104). While there are no data on the specific effects of microclimate changes on the availability of marbled murrelet nesting habitat at the scale of branches and trees, as discussed in the references above, the penetration of solar radiation and warm temperatures into the forest could change the distribution of epiphytes, and wind could blow moss off nesting platforms.

A large body of research indicates that marbled murrelet productivity is greatest in large, complex-structured forests far from human activity due to the reduced levels of predation present in such landscapes. Marbled murrelet productivity is lowest in fragmented landscapes; therefore, marbled murrelet nesting stands may be more productive if surrounded by simple-structured forests, and minimal human recreation and settlement. Human activities can significantly compromise the effectiveness of the forested areas surrounding nests to protect the birds and/or eggs from predation (Huhta *et al.* 1998, p. 464; Marzluff *et al.* 1999, pp. 3–4; Marzluff and Restani 1999, pp. 7–9, 11; Marzluff *et al.* 2000, pp. 1136–1138; De Santo and Willson 2001, pp. 145–147; Raphael *et al.* 2002a, p. 221; Ripple *et al.* 2003, p. 80).

In addition to studies of edge effects, some research initiated prior to 1996 looked at the importance of stand size. Among all Pacific Northwest birds, the marbled murrelet is considered to be one of the most sensitive to forest fragmentation (Hansen and Urban 1992, p. 168). Marbled murrelet nest stand size in Washington, Oregon, and California varied between 7 and 2,717 ac (3 and 1,100 ha) and averaged 509 ac (206 ha) (Hamer and Nelson 1995, p. 73). Nelson and Hamer (1995b, p. 96) found that successful marbled murrelets tended to nest in larger stands than did unsuccessful marbled murrelets, but these results were not statistically significant. Miller and Ralph (1995, entire) compared marbled murrelet survey detection rates among four stand size classes in California. Recording a relatively consistent trend, they observed that a higher percentage of large stands (33.3 percent) had nesting behavior detections when compared to smaller stands (19.8 percent), while a greater percentage of the smallest stands (63.9 percent) had no presence or nesting behavior detections when compared to the largest stands (52.4 percent) (Miller and Ralph 1995, pp. 210–212). However, these results were not statistically significant, and the authors did not conclude that marbled murrelets preferentially select or use larger stands. The authors suggested the effects of stand size on marbled murrelet presence and use may be masked by other factors such as stand history and proximity of a stand to other old-growth stands. Rodway *et al.* (1993, p. 846) recommended caution when interpreting marbled murrelet detection data, such as that used by Miller and Ralph (1995), because numbers of detections at different sites may be affected by variation caused by weather, visibility, and temporal shifts.

In addition to stand size, general landscape condition may influence the degree to which marbled murrelets nest in an area. In Washington, marbled murrelet detections increased when old-growth/mature forests make up more than 30 percent of the landscape (Hamer and Cummins 1990, p. 43). Hamer and Cummins (1990, p. 43) found that detections of marbled murrelets decreased in Washington when the percentage of clear-cut/meadow in the landscape increased above 25 percent. Additionally, Raphael *et al.* (1995, p. 177) found that the percentage of old-growth forest and large sawtimber was significantly greater within 0.5 mi (0.8 km) of sites (501-ac (203-ha) circles) that were used by nesting marbled murrelets than at sites where they were not detected. Raphael *et al.* (1995, p. 189) suggested tentative guidelines based on this analysis that sites with 35 percent old-growth and large sawtimber in the landscape are more likely to be used for nesting. In California, Miller and Ralph (1995, pp. 210–211) found that the density of old-growth cover and the presence of coastal redwood were the strongest predictors of marbled murrelet presence.

In summary, the best scientific information available strongly suggests that marbled murrelet reproductive success may be adversely affected by forest fragmentation associated with either natural disturbances, such as severe fire or windthrow, or certain land management practices, generally associated with timber harvest or clearing of forest. Based on this information, the Service concluded that the maintenance and development of suitable habitat in relatively large contiguous blocks as described in the 1996 rule and the draft Marbled Murrelet (Washington, Oregon, and California Population) Recovery Plan (draft recovery plan) (USFWS 1995, pp. 70–71, finalized in 1997) would contribute



to the recovery of the marbled murrelet. These blocks of habitat should contain the structural features and spatial heterogeneity naturally found at the landscape level, the stand level, and the individual tree level in Pacific Northwest forest ecosystems (Hansen *et al.* 1991, pp. 389–390; Hansen and Urban 1992, pp. 171–172; Ripple 1994, p. 48; Bunnell 1995, p. 641; Raphael *et al.* 1995, p. 189). Newer information further supports the conclusion that the maintenance of suitable nesting habitat in relatively large, contiguous blocks will be needed to recover the marbled murrelet (Meyer and Miller 2002, pp. 763–764; Meyer *et al.* 2002, p. 95; Miller *et al.* 2002, pp. 105–107; Raphael *et al.* 2011, p. 44).

*Summary of physical or biological features essential to the conservation of the marbled murrelet*

Therefore, based on the information presented in the 1996 final critical habitat rule and more recent data that continue to confirm the conclusions drawn in that rule, we consider the physical or biological features essential to the conservation of the marbled murrelet to include forests that are capable of providing the characteristics required for successful nesting by marbled murrelets. Such forests are typically coniferous forests in contiguous stands with large core areas of old-growth or trees with old-growth characteristics and a low ratio of edge to interior. However, due to timber harvest history we recognize that, in some areas, such as south of Cape Mendocino in California, coniferous forests with relatively smaller core areas of old-growth or trees with old-growth characteristics are essential for the conservation of the marbled murrelet because

they are all that remain on the landscape. Forests capable of providing for successful nesting throughout the range of the listed DPS are typically dominated by coastal redwood, Douglas-fir, mountain hemlock, Sitka spruce, western hemlock, or western red cedar, and must be within flight distance to marine foraging areas for marbled murrelets.

The most important characteristic of marbled murrelet nesting habitat is the presence of nest platforms. These structures are typically found in old-growth and mature forests, but can also be found in a variety of forest types including younger forests containing remnant large trees. Potential nesting areas may contain fewer than one suitable nesting tree per acre and nest trees may be scattered or clumped throughout the area. Large areas of unfragmented forest are necessary to minimize edge effects and reduce the impacts of nest predators to increase the probability of nest success. Forests are dynamic systems that occur on the landscape in a mosaic of successional stages, both as the result of natural disturbances (fire, windthrow) or anthropogenic management (timber harvest). On a landscape basis, forests with a canopy height of at least one-half the site-potential tree height in proximity to potential nest trees contribute to the conservation of the marbled murrelet. Trees of at least one-half the site-potential height are tall enough to reach up into the lower canopy of nest trees, which provides nesting murrelets more cover from predation. The site-potential tree height is the average maximum height for trees given the local growing conditions, and is based on species-specific site index tables. The earlier successional stages of forest also play an essential role in providing suitable nesting habitat for the marbled murrelet, as they proceed

through successional stages and develop into the relatively large, unfragmented blocks of suitable nesting habitat needed for the conservation of the species.

### **III. Primary Constituent Elements for the Marbled Murrelet**

According to 50 CFR 424.12(b), we are required to identify the physical or biological features essential to the conservation of the marbled murrelet within the geographical area occupied at the time of listing, focusing on the “primary constituent elements” (PCEs) of those features. We consider PCEs to be those specific elements of the physical or biological features that provide for a species’ life-history processes and are essential to the conservation of the species. For the marbled murrelet, those life-history processes associated with terrestrial habitat are specifically related to nesting. Therefore, as previously described in our designation of critical habitat for the marbled murrelet (61 FR 26256; May 24, 1996), and further supported by more recent information, our designation of critical habitat focused on the following PCEs specific to the marbled murrelet:

(1) individual trees with potential nesting platforms, and

(2) forested areas within 0.5 mile (0.8 kilometer) of individual trees with potential nesting platforms, and with a canopy height of at least one-half the site-potential tree height. This includes all such forest, regardless of contiguity.

These PCEs are essential to provide and support suitable nesting habitat for successful reproduction of the marbled murrelet.

#### **IV. Special Management Considerations or Protection**

In our evaluation of whether the current designation meets the statutory definition of critical habitat, we must assess not only whether the specific areas within the geographical area occupied by the species at the time of listing contain the physical or biological features essential to the conservation of the species, but also whether those features may require special management considerations or protection. Here we describe the special management considerations or protection that apply to the physical or biological features and PCEs identified for the marbled murrelet.

As discussed above and in the 1996 final rule designating critical habitat (May 24, 1996; 61 FR 26261–26263), marbled murrelets are found in forests containing a variety of forest structure, which is in part the result of varied management practices and natural disturbance (Hansen *et al.* 1991, p. 383; McComb *et al.* 1993, pp. 32–36). In many areas, management practices have resulted in fragmentation of the remaining older forests and creation of large areas of younger forests that have yet to develop habitat characteristics suitable for marbled murrelet nesting (Hansen *et al.* 1991, p. 387). Past and current forest management practices have also resulted in a forest age distribution skewed toward younger even-aged stands at a landscape scale (Hansen *et al.* 1991, p. 387; McComb *et al.* 1993, p. 31). Bolsinger and Waddell (1993, p. 2) estimated that old-growth forest in

Washington, Oregon, and California had declined by two-thirds statewide during the previous five decades.

Current and historical loss of marbled murrelet nesting habitat is generally attributed to timber harvest and land conversion practices, although, in some areas, natural catastrophic disturbances such as forest fires have caused losses (Hansen *et al.* 1991, pp. 383, 387; Ripple 1994, p. 47; Bunnell 1995, pp. 638–639; Raphael *et al.* 2011, pp. 34–39; Raphael *et al.* 2015 in prep, pp. 94–96). Reduction of the remaining older forest has not been evenly distributed in western Washington, Oregon, and California. Timber harvest has been concentrated at lower elevations and in the Coast Ranges (Thomas *et al.* 1990, p. 63), generally overlapping the range of the marbled murrelet. In California today, more than 95 percent of the original old-growth redwood forest has been logged, and 95 percent of the remaining old-growth is now in parks or reserves (Roa 2007, p. 169).

Some of the forests that were affected by past natural disturbances, such as forest fires and wind throw, currently provide suitable nesting habitat for marbled murrelets because they retain scattered individual or clumps of large trees that provide structure for nesting (Hansen *et al.* 1991, 383; McComb *et al.* 1993, p. 31; Bunnell 1995, p. 640). This is particularly true in coastal Oregon where extensive fires occurred historically. Marbled murrelet nests have been found in remnant old-growth trees in mature and young forests in Oregon. Forests providing suitable nesting habitat and nest trees generally require 200 to 250 years to develop characteristics that supply adequate nest

platforms for marbled murrelets. This time period may be shorter in redwood and western hemlock forests and in areas where significant remnants of the previous stand remain. Intensively managed forests in Washington, Oregon, and California have been managed on average cutting rotations of 70 to 120 years (USDI 1984, p. 10). Cutting rotations of 40 to 50 years are common for some private lands. Timber harvest strategies on Federal lands and some private lands have emphasized dispersed clear-cut patches and even-aged management. Forest lands that are intensively managed for wood fiber production are generally prevented from developing the characteristics required for marbled murrelet nesting. In addition, suitable nesting habitat that remains under these harvest patterns is highly fragmented.

Within the range of the marbled murrelet on Federal lands, the Northwest Forest Plan (NWFP) (USDA and USDI 1994, entire) designated a system of Late Successional Reserves (LSRs), which provides large areas expected to eventually develop into contiguous, unfragmented forest. In addition to LSRs, the NWFP designated a system of Adaptive Management Areas, where efforts focus on answering management questions, and matrix areas, where most forest production occurs. Administratively withdrawn lands, as described in the individual National Forest or BLM land use plans, are also part of the NWFP.

In the 1996 final rule, we acknowledged the value of implementation of the NWFP as an integral role in marbled murrelet conservation. As a result, designated critical habitat on lands within the NWFP area administered by the National Forests and

BLM was congruent with LSRs. These areas, as managed under the NWFP, should develop into large blocks of suitable murrelet nesting habitat given sufficient time. However, LSRs are plan-level designations with less assurance of long-term persistence than areas designated by Congress. Designation of LSRs as critical habitat complements and supports the NWFP and helps to ensure persistence of this management directive over time. These lands managed under the NWFP require special management considerations or protection to allow the full development of the essential physical or biological features as represented by large blocks of forest with the old-growth characteristics that will provide suitable nesting habitat for marbled murrelets.

In some areas, the large blocks of Federal land under the NWFP are presently capable of providing the necessary contribution for recovery of the species. However, the marbled murrelet's range includes areas that are south of the range of the northern spotted owl (the focus of the NWFP), where Federal lands are subject to timber harvest. Therefore, the critical habitat designated on Federal lands outside of the NWFP also require special management considerations or protection to enhance or restore the old-growth characteristics required for nesting by marbled murrelets, and to attain the large blocks of contiguous habitat necessary to reduce edge effects and predation.

In the 1996 critical habitat rule (May 24, 1996; 61 FR 26256), the Service designated selected non-Federal lands that met the requirements identified in the Criteria for Identifying Critical Habitat section, in those areas where Federal lands alone were insufficient to provide suitable nesting habitat for the recovery of the species. For

example, State lands were considered to be particularly important in southwestern Washington, northwestern Oregon, and in California south of Cape Mendocino. Small segments of county lands were also included in northwestern Oregon and central California. Some private lands were designated as critical habitat because they provided essential elements and occurred where Federal lands were, and continue to be, very limited, although suitable habitat on private land is typically much more limited than on public lands. In California, south of Cape Mendocino, State, county, city, and private lands contain the last remnants of nesting habitat for the southern-most population of murrelets, which is the smallest, most isolated, and most susceptible to extirpation. All of the non-Federal lands have been and continue to be subject to some amount of timber harvest and habitat fragmentation and lower habitat effectiveness due to human activity. Therefore, all non-Federal lands within the designation require special management considerations or protection to preserve suitable nesting habitat where it is already present, and to provide for the development of suitable nesting habitat in areas currently in early successional stages.

In summary, areas that provide the essential physical or biological features and PCEs for the marbled murrelet may require special management considerations or protection. Because succession has been set back or fragmentation has occurred due to either natural or anthropogenic disturbance, those essential features may require special management considerations or protections to promote the development of the large, contiguous blocks of unfragmented, undisturbed coniferous forest with old-growth characteristics (i.e., nest platforms) required by marbled murrelets. Areas with these



characteristics provide the marbled murrelet with suitable nesting habitat, and reduce edge effects, such as increased predation, resulting in greater nest success for the species. Areas that currently provide suitable nesting habitat for the marbled murrelet may require protection to preserve those essential characteristics, as the development of old-growth characteristics may take hundreds of years and thus cannot be easily replaced once lost.

## **V. Definition of Geographical Area Occupied at the Time of Listing**

Critical habitat is defined as the specific areas within the geographical area occupied by the species, at the time it is listed under section (3)(5)(A)(i) of the Act. For the purposes of critical habitat, the Service must first determine what constitutes the geographical area occupied by the species at the time of listing. We consider this to be a relatively broad-scale determination, as the wording of the Act clearly indicates that the specific areas that constitute critical habitat will be found within some larger geographical area. We consider the “geographical area occupied by the species” at the time of listing, for the purposes of section 3(5)(A)(i), to be the area that may be broadly delineated around the occurrences of a species, or generally equivalent to what is commonly understood as the “range” of the species. We consider a species occurrence to be a particular location in which individuals of the species are found throughout all or part of their life cycle, even if not used on a regular basis (e.g., migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals). Because the “geographical area occupied by the species” can, depending on the species at issue and the relevant data available, be defined on a relatively broad, coarse scale,

individuals of the species may or may not be present within each area at a smaller scale within the geographical area occupied by the species. For the purposes of critical habitat, then, we consider an area to be “occupied” (within the geographical area occupied by the species) if it falls within the broader area delineated by the species’ occurrences, i.e., its range.

Within the listed DPS, at-sea observations indicate marbled murrelets use the marine environment along the Pacific Coast from the British Columbia, Canada/Washington border south to the Mexico/California border. Because they must fly back and forth to the nest from their marine foraging areas, marbled murrelets use inland areas for nesting that are nearby to those areas used by the species offshore. The inland extent of terrestrial habitat use varies from north to south and depends upon the presence of nesting structures in relation to marine foraging areas. Marbled murrelets have been detected as far inland as 70 miles (mi) (113 kilometers (km)) in Washington, but the inland extent narrows going south, where marbled murrelets generally occur within 25 mi (40 km) of the coast in California. At a broad scale, the geographical area occupied by the listed DPS of the marbled murrelet at the time of listing includes the west coast from the British Columbia, Canada/Washington border south to the Mexico/California border, ranging inland from approximately 70 mi (113 km) in Washington to roughly 25 mi (40 km) of the coast in California. However, the inland nesting habitat extends southward in California only to just south of Monterey Bay. Occurrence data that supports this geographic range includes at-sea surveys, radar detections, radio-telemetry studies, and audio-visual surveys.

At the time the marbled murrelet was listed (October 1, 1992; 57 FR 45528), occurrence data were very limited. However, the geographic range was generally known at that time, with the exception of the exact inland extent.

We now describe what is known about marbled murrelet use of the critical habitat subunits that were designated in 1996, as revised in 2011. In 1996, only terrestrial areas were designated as critical habitat. Terrestrial habitat is used by the marbled murrelet only for the purpose of nesting; therefore, we focus on those specific areas used for nesting by the species. Because we did not designate critical habitat in the marine environment, that aspect of the species' life history or available data will not be discussed further, unless it is pertinent to the terrestrial habitat.

At the landscape scale, marbled murrelets show fidelity to marine foraging areas and may return to specific watersheds for nesting (Nelson 1997, pp. 13, 16–17, 20; Cam *et al.* 2003, p. 1123). For example, marbled murrelets have been observed to return to the same specific nest branches or sites (Hebert and Golightly 2006, p. 270; Bloxton and Raphael 2009, p. 11). Repeated surveys in nesting stands have revealed site tenacity similar to that of other birds in the alcid family (Huff *et al.* 2006, p. 12) in that marbled murrelets have been observed in the same suitable habitat areas for more than 20 years in California and Washington. Based on the high site tenacity exhibited by marbled murrelets, it is highly likely that areas found to be used by marbled murrelets since listing in 1992 were also being used at the time of listing. Therefore, in order to determine

whether any particular area was being used at the time the marbled murrelet was listed, we used all years of survey data available to us (for example, through 2013 in Washington, and some data through 2014 for California).

Not all survey data are indicative of nesting. The specific types of data that we relied upon include audiovisual surveys and specific nest locations, which may have been located through radio-telemetry studies, tree climbing, chicks on the ground, or egg shell fragments. Audiovisual surveys result in a variety of detections, only some of which are specific indicators of nesting behavior tied to the area being surveyed. The types of behaviors that are indicative of nesting include: sub-canopy behaviors, circling above the canopy, and stationary calling. Other types of detections, such as radar and fly-overs observed during audiovisual surveys, provide information regarding the general use of an area, but generally do not tie the observed individual(s) to a specific forested area (Evans Mack *et al.* 2003, pp. 20–23).

There continue to be gaps in our knowledge of marbled murrelet use in the terrestrial environment. Surveys are site/project specific and generally have been conducted for the purposes of allowing timber harvest. Surveys not conducted in adherence to the strict protocol may have missed nesting behaviors due to the cryptic nature of marbled murrelets and their nests. For example, a single visit to a location where marbled murrelets are present has only a 55 percent chance of detecting marbled murrelets (Evans Mack *et al.* 2003, p. 39). In addition, on some lands, such as Federal LSRs, our history of consultation under section 7 of the Act demonstrates that, in general,

land managers choose not to conduct surveys to determine site “presence;” rather they consider the suitable habitat to be used by nesting murrelets and adjust their projects accordingly. Therefore, we recognize that our information regarding marbled murrelet use of the terrestrial landscape is incomplete; however, we have determined that the information used in this document is the best scientific data available.

We consider the geographical area occupied by the species at the time of listing for the purposes of critical habitat to be equivalent to the nesting range of the marbled murrelet, for the reasons described above. However, it is important to note that at the time of listing, we may not have had data that definitively demonstrated the presence of nesting murrelets within each specific area designated as critical habitat. Some of these areas still lack adequate survey information. Yet because these areas fall within the broader nesting range of the species, we consider them to have been occupied at the time of listing. For the purposes of clarity, we further evaluated the specific areas within that broader geographic range to determine whether we have documented detections of behaviors indicative of nesting by the marbled murrelet at the scale of each subunit. The following types of data are indicative of the marbled murrelet’s use of forested areas for nesting and will be relied upon to make the determination of whether we have documentation of nesting behavior by critical habitat subunit:

(a) *Data indicative of nesting behavior.* A subunit with any of the following data will be considered to have a documented detection of nesting behavior. We consider one

detection in a subunit sufficient to support a positive nesting behavior determination for the entire subunit.

(1) Audio/visual surveys conducted according to the Pacific Seabird Group (PSG) survey protocol (Evans Mack *et al.* 2003 or earlier versions).

Detection types that are indicative of nesting include: sub-canopy behaviors (such as flying through the canopy or landing), circling above the canopy, and stationary calling.

(2) Nest locations obtained through radio-telemetry tracking, tree climbing, egg-shell fragments, and chicks on the ground.

(b) *Contiguity of forested areas within which nesting behaviors have been observed.* According to the PSG protocol (Evans Mack *et al.* 2003), a contiguously forested area with detections indicative of nesting behavior is deemed to be used by nesting marbled murrelets throughout its entirety. Therefore, any subunits where there were no detections of behaviors indicative of nesting or possibly no surveys, but the forested areas in the subunit are contiguous with forested areas extending outside of the subunit within which there are documented nesting behaviors, will be deemed to be positive in terms of a nesting behavior detection.

Radar-based marbled murrelet detections and presence-only detections (such as flying over or heard only) resulting from audio/visual surveys were not used to classify a

subunit as positive in terms of nesting behavior detections. Even though these detections indicate use of an area by marbled murrelets, these types of detections do not link murrelet nesting to specific areas of forested habitat.

In Washington and California, occurrence data, including nest locations and audio/visual survey data, are maintained in State wildlife agency databases. The Washington Department of Fish and Wildlife marbled murrelet data was obtained by the Service on June 19, 2014, and includes data collected through 2013. The California Department of Fish and Wildlife's marbled murrelet occurrence database, as currently maintained by the Arcata Fish and Wildlife Office, was accessed on February 5, 2015. The database includes information on some surveys conducted through 2006, with one observation from 2014, but is incomplete for the State. Audio/visual surveys in Oregon are not maintained in a centralized database. The Service, through a cooperative agreement, provided funds to the Oregon State University to obtain and collate Oregon survey data. The data provided to the Service included surveys through 2003, mainly on Federal lands. Additionally, the BLM and Oregon Department of Forestry provided a summary of current survey data, as of March of 2015, within critical habitat in Oregon. Survey data for private lands in Oregon were not available.

## **VI. Specific Areas Occupied at the Time of Listing**

We have determined that all 101 subunits designated as critical habitat in 1996, as revised in 2011, are within the geographical range occupied by the species at the time of

listing, and all 101 subunits contain the physical or biological features and PCEs essential to the conservation of the species. Evidence of the presence of PCEs is based on nests located within a subunit, nesting behavior detections, audio-visual survey station placements (generally surveys are only conducted if there are nesting platforms present in the forested area), and specific forest inventory data. All of these forms of evidence point to the presence of PCE 1, nesting platforms, within the subunit, as well as the presence of PCE 2. In addition, within all 101 subunits, the essential physical or biological features and PCEs may require special management considerations or protection, as described above, because these subunits have received or continue to receive some level of timber harvest, fragmentation of the forested landscape, and reduced habitat effectiveness from human activity. Therefore, all 101 subunits meet the definition of critical habitat under section 3(5)(A)(i) of the Act.

Of the 101 subunits, 78 (all critical habitat subunits except for those identified in Table 1, below) have either specific nesting behavior detection data within the subunit or forested areas within the subunit that are contiguous with forested areas within which nesting behaviors have been observed. In total, the 78 subunits with nesting behavior detections account for 3,335,400 ac (1,349,800 ha), or 90 percent of the total designation. These 78 subunits all contain the physical or biological features and PCEs essential to the conservation of the species, which may require special management considerations or protection, as described above, because these subunits have received or continue to receive some level of timber harvest, fragmentation of the forested landscape, and



reduced habitat effectiveness from human activity. Therefore, we conclude that these 78 subunits meet the definition of critical habitat under section 3(5)(A)(i) of the Act.

TABLE 1.—Marbled murrelet critical habitat subunits without detections indicative of nesting behavior.

<b>Subunit</b>
WA-04a
WA-11d
OR-01d
OR-06a
OR-06c
OR-07f
OR-07g
CA-01d
CA-01e
CA-04b
CA-05a
CA-05b
CA-06a
CA-06b
CA-07b
CA-07c
CA-08a
CA-08b
CA-09a
CA-09b
CA-11b
CA-13
CA-14c

There are 23 subunits that did not have data indicating marbled murrelet nesting behaviors at the time of listing (Table 1). All of these subunits, however, are within the range of the species at the time of listing, and, hence, we consider them to be occupied. Of these 23 subunits, 2 are in Washington, 5 are in Oregon, and 16 are in California, totaling up to 362,600 ac (145,800 ha) or 10 percent of the designation. We have

determined that all 23 subunits contain the essential physical or biological features and PCEs based on specific forest inventory data and audio-visual survey station placements. Only 7 of these 23 subunits have received partial or complete surveys to determine use by marbled murrelets. Very limited inland distribution information was available when the species was listed (1992) and in 1996 when critical habitat was designated (May 24, 1996; 61 FR 26256, pp. 26269–26270). However, continued survey efforts have filled in gaps in the distribution that were not known at the time of listing. For example, as of June 2014, the Washington Department of Fish and Wildlife murrelet detection database contained 5,225 nesting behavior detections. Of these 5,225 detections, only 254 were from surveys before 1992 and only 2,149 were prior to 1996. Therefore, it is our opinion that had surveys been conducted in many of these 23 subunits, it is likely that nesting behaviors would have been detected.

Even if these 23 subunits were considered unoccupied at the time of listing because we do not have specific documentation of nesting behaviors, the Act permits designation of such areas as critical habitat if they are essential for the conservation of the species. We evaluated whether each of these 23 subunits are essential for the conservation of the species. In this evaluation we considered: (1) The importance of the area to the future recovery of the species; (2) whether the areas have or are capable of providing the essential physical or biological features; and (3) whether the areas provide connectivity between marine and terrestrial habitats. As stated above, we determined that all 23 subunits contain the physical or biological features and PCEs for the marbled murrelet; therefore, all 23 subunits provide essential nesting habitat that is currently

limited on the landscape. In particular, 13 subunits in California that are south of Cape Mendocino contain the last remnants of nesting habitat in that part of California. All 101 designated subunits work together to create a distribution of essential nesting habitat from north to south and inland from marine foraging areas. All of the designated critical habitat units occur within areas identified in the draft and final recovery plans for the marbled murrelet (USFWS 1995 and 1997, entire) as essential for the conservation of the species. Maintaining and increasing suitable nesting habitat for the marbled murrelet is a key objective for the conservation and recovery of the species, by providing for increases in nest success and productivity needed to attain long-term population viability. Based upon this information, we have determined that all of the 23 subunits where nesting behaviors have not been documented are, nonetheless, essential for the conservation of the species. Therefore, even if these 23 subunits were considered unoccupied, we conclude that they meet the definition of critical habitat under section 3(5)(A)(ii) of the Act.

## **VII. All critical habitat is essential to the conservation of the marbled murrelet**

As described above, all areas designated as critical habitat for the marbled murrelet (101 subunits) contain the physical or biological features and PCEs essential to the conservation of the species, which may require special management considerations or protection. We recognize that the physical or biological features and PCEs may not be uniformly distributed throughout these 101 subunits because historical harvest patterns and natural disturbances have created a mosaic of multiple-aged forests. Replacement of

essential physical or biological features and PCEs for the marbled murrelet can take centuries to grow.

We have additionally evaluated all currently designated critical habitat for the marbled murrelet applying the standard under section 3(5)(A)(ii) of the Act, and have determined that all 101 subunits included in this designation are essential for the conservation of the species. As detailed above, we have determined that all areas of critical habitat, whether known to be occupied at the time of listing or not, contain the physical or biological features and PCEs for the marbled murrelet. All 101 designated subunits work together to create a distribution of essential nesting habitat from north to south and inland from marine foraging areas, and occur within areas identified in the draft and final recovery plans for the marbled murrelet (USFWS 1995 and 1997, entire) as essential for the conservation of the species. All areas designated as critical habitat are essential for the conservation and recovery of the marbled murrelet by maintaining and increasing suitable nesting habitat and limiting forest fragmentation, thereby providing for increases in nest success and productivity to attain long-term population viability of the species. Therefore, we have determined that all areas currently identified as critical habitat for the marbled murrelet, whether confirmed to be occupied at the time of listing or not, are essential for the conservation of the species and meet the definition of critical habitat under section 3(5)(A)(ii) of the Act. Recent population and suitable habitat research confirms that these areas continue to be essential because the marbled murrelet population has declined since listing (Miller *et al.* 2012, entire) and continues to decline in Washington (Lance and Pearson 2015, pp. 4–5), hence suitable nesting areas are of

increased importance to provide recovery potential for the marbled murrelet. In addition, while habitat loss has slowed since adoption of the NWFP, suitable nesting habitat continues to be lost to timber harvest (Raphael *et al.* 2015 in prep, pp. 94–95).

## **VIII. Restated Correction**

The preamble to the 1996 final critical habitat rule (May 24, 1996; 61 FR 26265) stated that within the boundaries of designated critical habitat, only those areas that contain one or more PCEs are, by definition, critical habitat, and areas without any PCEs are excluded by definition. This statement was in error; we clarified this language in the revised critical habitat rule published in 2011 (October 5, 2011; 76 FR 61599, p. 61604), and we reemphasize this correction here. By introducing some ambiguity in our delineation of critical habitat, this language was inconsistent with the requirement that each critical habitat unit be delineated by specific limits using reference points and lines (50 CFR 424.12(c)). The Service does its best not to include areas that obviously cannot attain PCEs, such as alpine areas, water bodies, serpentine meadows, lava flows, airports, buildings, parking lots, etc. (May 24, 1996; 61 FR 26256, p. 26269). However, the scale at which mapping is done for publication in the Code of Federal Regulations does not allow precise identification of these features, and, therefore, some may fall within the critical habitat boundaries. Hence, all lands within the mapped critical habitat boundaries for the marbled murrelet are critical habitat.

## **IX. Effects of Critical Habitat Designation**

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. A detailed explanation of the regulatory effects of critical habitat in terms of consultation under section 7 of the Act and application of the adverse modification standard is provided in the October 5, 2011, final rule revising critical habitat for the marbled murrelet (76 FR 61599).

Section 7 consultation is required whenever there is a discretionary Federal action that may affect listed species or designated critical habitat. Section 7(a)(3) also states that a Federal agency shall consult with the Secretary on any prospective agency action at the request of, and in cooperation with, the prospective permit or license applicant if the applicant has reason to believe that an endangered species or a threatened species may be present in the area affected by his or her project and that implementation of such action will likely affect such species. The initiation of section 7 consultation under the jeopardy standard takes place if the species may be present and the action may affect the species. As described above, because of the relatively coarse scale at which critical habitat is designated, the species may or may not be present within all portions of the “geographical area occupied by the species” or may be present only periodically. Therefore, at the time of any consultation under section 7 of the Act, the species of interest may not be present within the action area for the purposes of the section 7

consultation, even if that action area is within the “geographical area occupied by the species.”

We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) section 9 of the Act’s prohibitions on taking any individual of the species, including taking caused by actions that affect habitat. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

## **X. Economic Considerations**

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation or revision of critical habitat. If critical habitat has not been previously designated, the probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios both “with critical habitat” and “without critical habitat.” The “without critical habitat” scenario represents the baseline for the analysis, and includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (e.g., under the Federal listing as well as other Federal, State, and local regulations). In this case the baseline represents the costs of all efforts attributable to the listing of the species under the Act (i.e., conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The “with critical habitat” scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. These are the conservation efforts and associated impacts that would not be expected but for the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These incremental costs represent the potential economic impacts we consider in association with a designation or revision of critical habitat, as required by the Act.

Baseline protections as a result of the listed status of the marbled murrelet include sections 7, 9, and 10 of the Act, and any economic impacts resulting from these



protections to the extent they are expected to occur absent the designation of critical habitat:

- Section 7 of the Act, even absent critical habitat designation, requires Federal agencies to consult with the Service to ensure that any action authorized, funded, or carried out will not likely jeopardize the continued existence of any endangered or threatened species. Consultations under the jeopardy standard result in administrative costs, as well as impacts of conservation efforts resulting from consideration of this standard.
- Section 9 defines the actions that are prohibited by the Act. In particular, it prohibits the “take” of endangered wildlife, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The economic impacts associated with this section manifest themselves in sections 7 and 10.
- Under section 10(a)(1)(B) of the Act, an entity (e.g., a landowner or local government) may develop an HCP for a listed animal species in order to meet the conditions for issuance of an incidental take permit in connection with a land or water use activity or project. The requirements posed by the HCP may have economic impacts associated with the goal of ensuring that the effects of incidental take are adequately avoided or minimized. The development and implementation of HCPs is considered a baseline protection for the species and habitat unless the HCP is determined to be precipitated by the designation of critical habitat, or the designation influences stipulated conservation efforts under HCPs.

In the present rulemaking, we are not starting from a “without critical habitat” baseline. In this particular case, critical habitat has been in place for the marbled murrelet since May 24, 1996 (61 FR 26256), and was most recently revised on October 5, 2011 (76 FR 61599). Since the 2011 revision resulted only in the removal of some areas of critical habitat, all areas remaining in the current designation have been critical habitat for the marbled murrelet since 1996. This current critical habitat designation forms the baseline for our consideration of the potential economic impacts of this proposed rule. In this document, we describe our evaluation and conclusion that all of the currently designated areas meet the statutory definition of critical habitat for the marbled murrelet. Specifically, we have clarified that all areas are within the range of the marbled murrelet and, therefore, occupied by the species at the time of listing, and contain the physical or biological features essential to the conservation of the species, which may require special management consideration or protection. Furthermore, although all areas are considered to have been occupied at the time of listing, all areas do not necessarily have specific data indicating known detections of nesting murrelets at the time of listing. Therefore, we have further evaluated and determined that all critical habitat, regardless of whether we have information indicating definitive use by nesting murrelets at the time of listing, is essential for the conservation of the species. As a result of our evaluation, we are not proposing any modification to the boundaries of critical habitat for the marbled murrelet, nor are we proposing any changes to the definition of the PCEs (May 24, 1996; 61 FR 26256).

We have considered the probable incremental economic impacts that may result from this proposed rule with regard to critical habitat for the marbled murrelet. Critical habitat designation will not affect activities that do not have any Federal involvement; designation of critical habitat affects only activities conducted, funded, permitted, or authorized by Federal agencies. In areas where the marbled murrelet is present, Federal agencies already are required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. In this particular case, because all areas that we have considered are already designated as critical habitat for the marbled murrelet, where a Federal nexus occurs, consultations to avoid the destruction or adverse modification of critical habitat have been incorporated into the existing consultation process. Federal agencies have been consulting under section 7 of the Act on critical habitat for the marbled murrelet for approximately 20 years. As this proposed rule does not suggest the addition of any new areas as critical habitat, any probable economic impacts resulting from this rulemaking would result solely from our clarification of how all of the areas currently designated meet the statutory definition of critical habitat. The incremental economic impacts of this proposed rule would, therefore, be equal to any additional costs incurred as the result of a difference between the outcome of consultations as they are currently conducted and consultations as they would be conducted if this rulemaking is finalized as proposed.

We fully considered any probable economic impacts that may result from this proposed rule. Based upon our evaluation, we do not anticipate changes to the consultation process or effect determinations made for critical habitat as a result of our

evaluation and conclusion that all areas meet the definition of critical habitat under the Act. In addition, we do not anticipate requiring additional or different project modifications than are currently requested when an action “may affect” critical habitat. Therefore, it is the Service’s expectation that this proposed rule clarifying the 1996 critical habitat designation, as revised in 2011, which explains how all areas within the boundaries of the current designation meet the definition of critical habitat under the Act, will result in no additional (incremental) economic impacts.

In order to confirm that our assessment of the potential economic impacts of this proposed rule is accurate, we asked those Federal action agencies that manage lands that are critical habitat or with whom we have consulted over the past 20 years on marbled murrelet critical habitat to review our evaluation and characterization of the changes, if any, to consultation under section 7 that may be anticipated as a consequence of this proposed rule. We specifically asked each agency whether our proposed rule would be likely to result in any additional economic impacts on their agency (incremental impacts), above and beyond those already incurred as a result of the current critical habitat designation for the marbled murrelet (baseline impacts). Based on our consultation history with Federal agencies, it is our understanding that action agencies currently consult on effects to marbled murrelet critical habitat through an analysis of the effects to the PCEs. We asked the action agencies to confirm or correct this understanding, and to verify our characterization of how these consultations take place under the current designation, which we described as follows:

- If an action will take place within designated critical habitat, the action agency considers the action area to be critical habitat, irrelevant of the presence of PCEs. The action agency then determines whether there are PCEs within the action area. If the action agency determines there are no PCEs within the action area, the agency makes a “no effect” determination and the Service is not consulted.
- If the action agency determines there are PCEs within the action area, they analyze the action’s potential effects on the PCEs, which may result in a “no effect” or “may effect” determination. If the action agency determines the action “may affect” the PCEs, they undergo section 7 consultation with the Service.

Whether the critical habitat subunit or action area is considered to be “occupied” by the species is irrelevant to the effect determination made for critical habitat. Rather, the determination of “occupancy” is relevant to the effect determination for the species and any minimization measures that may be implemented (such as project timing).

In this proposed rule we have reconsidered and clarified that we consider all areas to have been occupied by the species at the time of listing, and that all of these areas have the PCEs. Because occupancy of the critical habitat subunit or action area is considered irrelevant to the effect determination made for critical habitat, the Service does not

anticipate changes to the consultation process or effect determinations made for critical habitat as a result of this determination. In addition, the Service does not anticipate requiring additional or different project modifications than are currently requested when an action “may affect” critical habitat. Therefore, it is the Service’s expectation that the proposed rule clarifying the 1996 critical habitat designation [*sic*: as revised in 2011], which will clearly explain how all areas within the boundaries of the current designation meet the definition of critical habitat under the Act, will not result in additional (incremental) costs to the Federal agencies.

We solicited review and comment on our draft summary of the anticipated economic impacts of this proposed rule, as described above, from seven Federal agencies with whom we regularly consult on marbled murrelet critical habitat (the U.S. Forest Service (USFS), U.S. Bureau of Land Management (BLM), National Park Service (NPS), Bureau of Indian Affairs (BIA), U.S. Army Corps of Engineers (Corps), Federal Highway Administration (FHA), and Federal Energy Regulatory Commission (FERC)). We received responses from four of these agencies: the USFS representing multiple national forests, the BLM representing multiple districts, the NPS representing Redwood National Park and State Parks partnership, and the BIA. All responses agreed with our evaluation of the potential incremental effects of the proposed rule, and confirmed that they did not anticipate any additional costs as a result of the clarification of areas occupied at the time of listing. Our initial letter of inquiry and all responses received from the action agencies are available for review in the Supplemental Materials folder at <http://www.regulations.gov>, Docket No. FWS–R1–ES–2015–0070.

We additionally considered any potential economic impacts on non-Federal entities as a result of this proposed rule. In our experience, any economic impacts to non-Federal parties are generally associated with the development of HCPs under section 10(a)(1)(B) of the Act. However, as described above, in most cases the incentive for the development of an HCP is the potential issuance of an incidental take permit in connection with an activity or project in an area where a listed animal species occurs. HCPs are seldom undertaken in response to a critical habitat designation, but in such a case the costs associated with the development of an HCP prompted by the designation of critical habitat would be considered an incremental impact of that designation. In this particular situation, because we are not proposing any changes to the boundaries of critical habitat, we do not anticipate the initiation of any new HCPs in response to this proposed rule; therefore, we do not anticipate any costs to non-Federal parties associated with HCP development.

Other potential costs to non-Federal entities as a result of critical habitat designation might include costs to third party private applicants in association with Federal activities. In most cases, consultations under section 7 of the Act involve only the Service and other Federal agencies, such as the U.S. Army Corps of Engineers. Sometimes, however, consultations may include a third party involved in projects that involve a permitted entity, such as the recipient of a Clean Water Act section 404 permit. In such cases, these private parties may incur some costs, such as the cost of applying for the permit in question, or the time spent gathering and providing information for a permit.

These costs and administrative effort on the part of third party applicants, if attributable solely to critical habitat, would be incremental impacts of the designation. In this particular case, however, because we are not proposing any boundary changes to the current critical habitat designation, we do not anticipate any change from the current baseline conditions in terms of potential costs to third parties; therefore, we expect any incremental impacts to non-Federal parties associated with this proposed rule to be minimal.

Based on our evaluation and the information provided to us by the Federal action agencies within the critical habitat area under consideration, we conclude that this proposed rule will result in little if any additional economic impacts above baseline costs, and we seek public input on this conclusion.

## **XI. Determination**

We have examined all areas designated as critical habitat for the marbled murrelet in 1996 (May 24, 1996; 61 FR 26256), as revised in 2011 (October 5, 2011; 76 FR 61599), and evaluated whether all areas meet the definition of critical habitat under section 3(5)(A) of the Act. Based upon our evaluation, we have determined that all 101 subunits designated as critical habitat are within the geographical area occupied by the species at the time of listing, and each of these subunits provide the physical or biological features and PCEs essential to the conservation of the species, which may require special management considerations or protections. Therefore, we conclude that all areas



designated as critical habitat for the marbled murrelet meet the definition of critical habitat under section 3(5)(A)(i) of the Act. Of the 101 subunits, 78 of those subunits had documented detections of nesting behavior at the time of listing. We have determined that we do not have sufficient data to definitively document nesting behavior within the other 23 subunits at the time of listing. However, even if these 23 subunits were considered unoccupied, the Secretary has determined that they are essential for the conservation of the species, as they contribute to the maintenance or increase of suitable nesting habitat required to achieve the conservation and recovery of the marbled murrelet; therefore, we conclude that they meet the definition of critical habitat under section 3(5)(A)(ii) of the Act.

In addition, recognizing that the detection of nesting behaviors or the presence of essential physical or biological features or PCEs within a subunit may be evaluated on multiple scales, such that at some finer scales some subset of the subunit may be considered unoccupied or lacking in PCEs, we evaluated the designation in its entirety as if it were unoccupied under section 3(5)(A)(ii) of the Act, and found that all areas of critical habitat are essential for the conservation of the species. We have here clarified that we have evaluated all critical habitat for the marbled murrelet, and have concluded that in all cases the areas designated as critical habitat for the marbled murrelet meet the definition of critical habitat under section 3(5)(A) of the Act. In addition, as required by section 4(b)(2) of the Act, we have considered the potential economic impact of this clarification, and we have concluded that any potential economic effects resulting from this rulemaking are negligible.

Therefore, we conclude that, under the Act, critical habitat as currently designated for the marbled murrelet in the Code of Federal Regulations remains valid, and we seek public input on this determination.

## **Public Hearings**

Section 4(b)(5) of the Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days after the date of publication of this proposed rule in the **Federal Register**. Such requests must be sent to the address shown in the **ADDRESSES** section. We will schedule public hearings on this proposal, if any are requested, and announce the dates, times, and places of those hearings, as well as how to obtain reasonable accommodations, in the **Federal Register** and local newspapers at least 15 days before the hearing.

## **Required Determinations**

### *Regulatory Planning and Review (Executive Orders 12866 and 13563)*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 et seq.), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 et seq.), whenever an agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification

statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine if potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

The Service’s current understanding of the requirements under the RFA, as amended, and following recent court decisions, is that Federal agencies are only required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself, and therefore, not required to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical

habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the Agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies will be directly regulated by this designation. Moreover, Federal agencies are not small entities. Therefore, because no small entities are directly regulated by this rulemaking, the Service certifies that, if promulgated, this determination of critical habitat will not have a significant economic impact on a substantial number of small entities.

In summary, we have considered whether this proposed rule would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if promulgated, the proposed determination of critical habitat would not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain action. In our consideration of potential

economic impacts, we did not find that this rule clarification will significantly affect energy supplies, distribution, or use. This proposed rule only clarifies how the designated critical habitat meets the definition of critical habitat under the Act, and does not propose any changes to the boundaries of the current critical habitat. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.), we make the following findings:

(1) This rule will not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)-(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or tribal governments “lack authority” to adjust

accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule will significantly or uniquely affect small governments because this proposed rule only clarifies how the designated critical habitat meets the definition of critical habitat under the Act, and does not propose any changes to the boundaries of the current critical habitat, therefore, landownership within critical habitat does not change. Therefore, a Small Government Agency Plan is not required.

*Takings—Executive Order 12630*

In accordance with Executive Order 12630 (“Government Actions and Interference with Constitutionally Protected Private Property Rights”), we analyzed the potential takings implications of this proposed determination of critical habitat for the marbled murrelet. This proposed rule clarifies whether and how the designated critical habitat meets the definition of critical habitat under the Act, and does not propose any changes to the boundaries of the current critical habitat, therefore, landownership within critical habitat does not change. Thus, we conclude that this proposed rule does not pose additional takings implications for lands within or affected by the original 1996 designation. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. Therefore, based on the best available information, as described above, we conclude that this proposed determination of critical habitat for the marbled murrelet does not pose significant takings implications.

*Federalism—Executive Order 13132*



In accordance with E.O. 13132 (Federalism), this proposed rule does not have significant Federalism effects. A Federalism assessment is not required. From a Federalism perspective, the designation of critical habitat directly affects only the responsibilities of Federal agencies. The Act imposes no other duties with respect to critical habitat, either for States and local governments, or for anyone else. As a result, the rule does not have substantial direct effects either on the States, or on the relationship between the national government and the States, or on the distribution of powers and responsibilities among the various levels of government. The designation may have some benefit to these governments because the areas that contain the features essential to the conservation of the species are more clearly defined, and the physical and biological features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist these local governments in long-range planning (because these local governments no longer have to wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

*Civil Justice Reform—Executive Order 12988*

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. In our proposal, we have reconsidered designated critical habitat for the marbled murrelet for the purpose of assessing whether all of the areas meet the statutory definition of critical habitat in accordance with the provisions of the Act. To assist the public in understanding the habitat needs of the species, the proposed rule identifies the elements of physical or biological features essential to the conservation of the marbled murrelet.

*Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). This rule will not impose recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

*National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the Federal Register on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

#### *Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes.

There are no tribal lands designated as critical habitat for the marbled murrelet.

### *Clarity of the Rule*

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

### **References Cited**

A complete list of all references cited in this rule is available on the Internet at <http://www.regulations.gov>. In addition, a complete list of all references cited herein, as well as others, is available upon request from the Washington Fish and Wildlife Office (see **ADDRESSES**).

## **Authors**

The primary authors of this document are the staff members of the Washington Fish and Wildlife Office, U.S. Fish and Wildlife Service (see **ADDRESSES**).

## **Authority**

The authority for this action is the Endangered Species Act of 1977, as amended (16 U.S.C. 1531 *et seq.*).

Dated: 7/29/15

Signed: Michael J. Bean

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks.

Billing Code 4310-55-P

[FR Doc. 2015-20837 Filed: 8/24/2015 08:45 am; Publication Date: 8/25/2015]